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THE SEARCH FOR HEALTH

A Report from
The National Institutes of Health
Bethesda, Maryland

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Dental Implants

The use of dental implants to provide support for replacement of missing teeth is becoming an important component of modern dentistry. As a result of advances in research on implant design, materials, and techniques the use of these devices has increased dramatically in the past few years and is expected to expand further in the future. Many types of implants are now available for application to different clinical cases, and an increasing number of dentists have become involved in this form of treatment. It has been estimated that the overall number of dental implants inserted in the United States increased fourfold from 1983 to 1987, and during that same period the number of practitioners who perform implant therapy increased tenfold.

The magnitude of the missing tooth problem (edentulism) in the United States' adult population remains considerable. Although there has been a tremendous reduction in coronal dental caries during the past several decades, this improvement is evident mainly in the younger segments of the population, with individuals over 35 years of age still showing a significant prevalence of full or partial edentulism.

Many individuals with edentulism can be treated with partial or complete traditional removable dentures or fixed bridges. However, these prostheses are not satisfactory for a significant number of individuals who have lost the tooth-bearing portions of the bone and simply cannot manage removable prostheses, or are medically compromised and cannot properly masticate food.

In an effort to resolve some of the existing controversies and to deal with the gaps in knowledge in dental implantology, the National Institute of Dental Research (NIDR) in conjunction with the National Institutes of Health Office of Medical Applications of Research and the Food and Drug Administration convened a consensus development conference on June 13-15, 1988.

Because of the lack of randomized trials to compare different implant systems and the lack of uniformity in defining success, it is not possible to make judgments on the comparative merits of different implant systems. No reliable data are available on the effect of variations in restorative techniques on the long-term success rate of implants nor are data available on the long-term use of implants in edentulous children.

The assessment of patient risk should be considered, including risks associated with the surgery and or anesthesis, psychological risks, and medical risks. Risks associated with the surgical procedure may include inadvertent perforation of the nasal sinus, local and systemic infection, and nerve injury.

Factors related to prediction of health risks need to be continuously assessed before the surgical decision, after implantation, during the temporary waiting period, following the loading period, and at 6-month intervals throughout the follow-up period.

Long-term studies that concurrently compare various types of implants are needed to provide information beyond mere survival rates. Functional success of various implants should include such criteria as the ability to support fixed or removable prostheses in the absence of discomfort, the presence of satisfactory esthetics, and clinical and radiographic evidence of tissue health. A suggestion for the establishment of a National Dental Implant Registry was proposed with the objective of collecting data and documentation on various procedures being conducted in the United States. Future studies in materials and techniques were proposed.

Helen Ou, Editor
NIH News Branch
Building 31, room 2B-10
Bethesda, MD 20205
Phone (303) 496-2535

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